ABSTRACT

The present invention relates to IR-sensitive compositions suitable for the manufacture of printing plates developable on-press. The IR-sensitive compositions comprise:

(a) a first polymeric binder which does not comprise acidic groups having a pKa value less than or equal to 8;

(b) a second polymeric binder comprising polyether groups

(c) an initiator system comprising

(i) at least one compound capable of absorbing IR radiation selected from triarylamine dyes, thiazolium dyes, indolium dyes, oxazolium dyes, cyanine dyes, polyaniline dyes, polypyrrole dyes, polythiophene dyes and phthalocyanine pigments;

(ii) at least one compound capable of producing radicals selected from polyhaloalkyl-substituted compounds; and

(iii) at least one polycarboxylic acid represented by the following formula I

$$R^4\text{-}(CR^5R^6)_r - Y - CH_2COOH \qquad (I)$$

wherein Y is selected from the group consisting of O, S and NR^7,

each of R^4, R^5 and R^6 is independently selected from the group consisting of hydrogen, C_1-C_4 alkyl, substituted or unsubstituted aryl, -COOH and NR^8CH_2COOH,

R^7 is selected from the group consisting of hydrogen, C_1-C_6 alkyl,

$-CH_2CH_2OH$, and C_1-C_5 alkyl substituted with –COOH,

R^8 is selected from the group consisting of $–CH_2COOH$, $-CH_2OH$ and $–(CH_2)_2N(CH_2COOH)_2$ and r is 0, 1, 2 or 3, with the proviso that at least one of R^4, R^5, R^6, R^7 and R^8 comprises a –COOH group or salts thereof; and

(d) a free radical polymerizable system comprising at least one member selected from unsaturated free radical polymerizable monomers, oligomers which are free radical polymerizable and polymers containing C=C bonds in the back bone and/or in the side chain groups,

wherein the following inequality is met:

$$ox_i < red_{ii} + 1.6 \text{ eV}$$

with ox_i = oxidation potential of component (i) in eV

red_{ii} = reduction potential of component (ii) in eV.